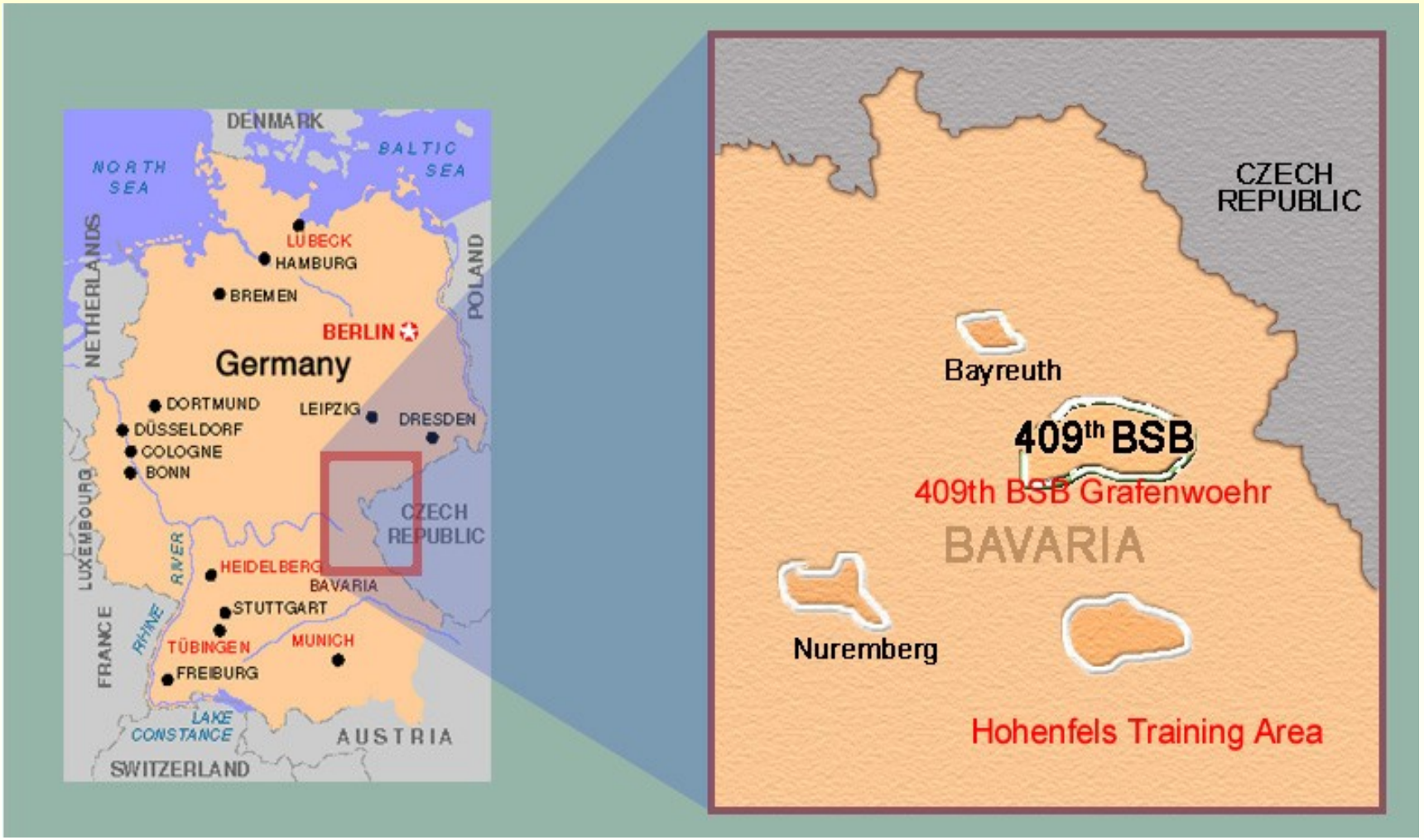
Manfred Rieck
Jochen Oesterreicher
Helmut Strempel

Nashville, August 2001

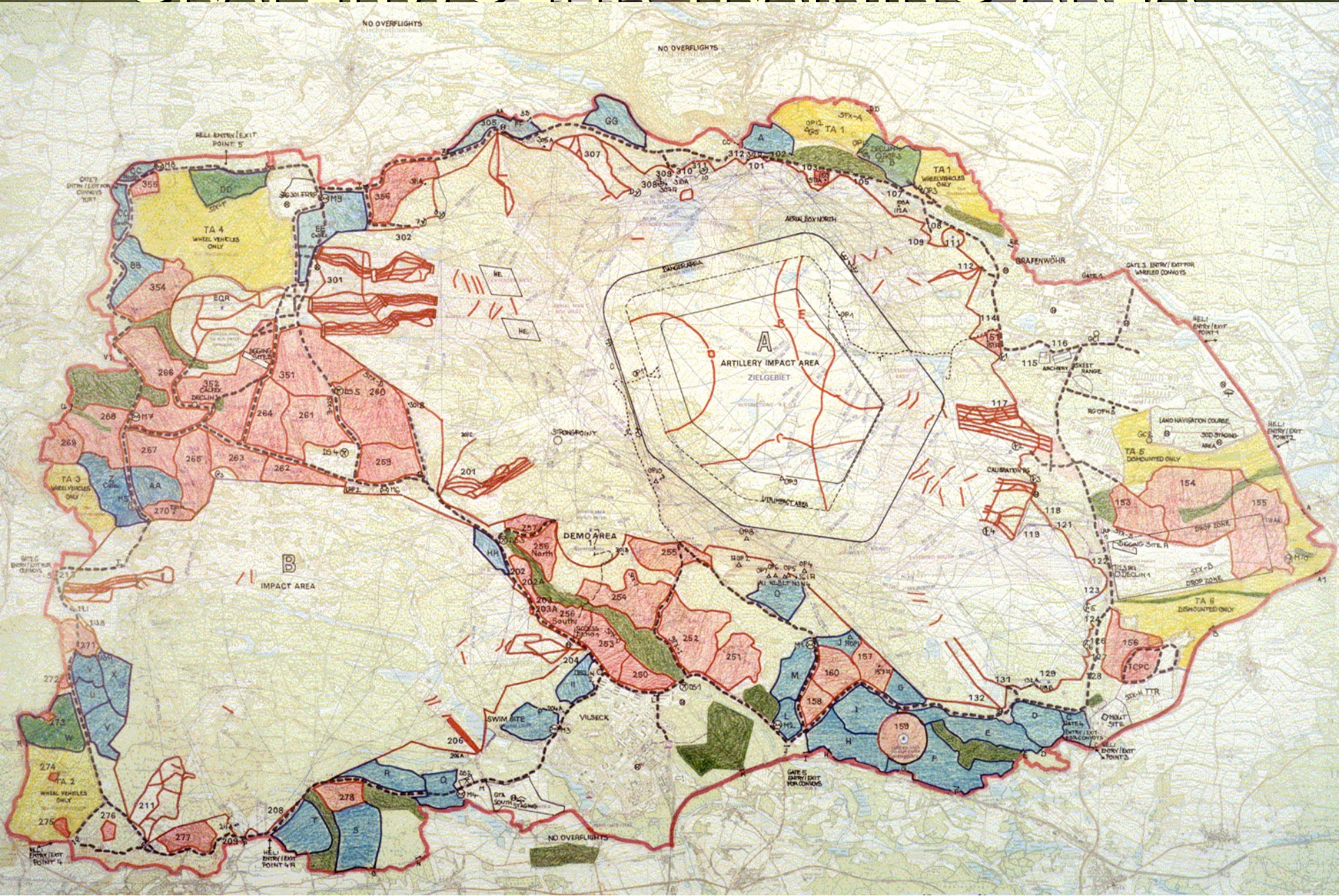
LOCATION OF GRAFENWOEHR TRAINING AREA (GTA)



MISSION OF GTA

- **PROVIDE TRAINING SUPPORT, QUALITY SERVICE**
- **PROVIDE MANAGEMENT AND LOGISTICAL SUPPORT TO TRAINING UNITS UTILIZING THE GRAFENWOEHR/VILSECK TRAINING AREAS**
- **FACILITATE DEPLOYMENT OPERATIONS FOR TENANT UNITS AND PREPARE TO DEPLOY SELECTED PERSONNEL**

GRAFENWOEHR TRAINING AREA



TASKS OF DPW REGARDING RANGE MAINTENANCE

- **COURSE ROAD CONSTRUCTION/MAINTENANCE**
- **TARGET PIT CONSTRUCTION**
- **GRADING/DECOMPACTING OF SOIL**
- **RESEEDING/EROSION PREVENTION AND CORRECTION**
- **CONSTRUCTION/EXCAVATION OF SLUDGE SETTLING BASINS**
- **CONSTRUCTION OF RETAINING BASINS**

- **VEGETATION CLEARANCE AT RANGE TARGET AREAS**

VEGETATION CLEARANCE AT RANGE TARGET AREAS

WHY?

- **VISIBILITY OF TARGETS**
- **REDUCED FIRE RISK**
- **REMOVAL OF VEGETATION FOR UXO CLEARANCE**
- **UXO CLEARANCE FOR MAINTENANCE/ INSTALLATION OF NEW TARGETS**
- **UXO CLEARANCE FOR NEW TRAINING REQUIREMENTS(E.G. DISMOUNTED TRAINING DURING CMTC LIFE FIRE EXERCISE)**

HISTORY

- VEGETATION CLEARANCE NOT REQUIRED DUE TO HIGH RANGE USAGE

- MORE FREQUENT

  UNCONTROLLED RANGE FIRES

PRESENT SITUATION

- **LESS RANGE USAGE (MORE SIMULATION)**
- **IMPROVED FIRE PREVENTION/FIRE FIGHTING**
- **HIGH NUMBER OF TARGETS ON VARIOUS RANGES “INVISIBLE”**
- **VEGETATION CANNOT BE CUT DUE TO SAFETY PROBLEMS (UXO)**
- **CONSEQUENTLY NEW TARGETS CANNOT BE INSTALLED**
- **EOD CANNOT CONDUCT DE-DUDDING DUE TO VEGETATION HEIGHT**

LEADS TO

INVISIBLE TARGETS

INVISIBLE TARGETS

NEGATIVE IMPACT
ON TRAINING

POSSIBLE SOLUTIONS

- VEGETATION BURNING

- REMOVAL OF VEGETATION WITH
  - ARMORED BULLDOZER (ON-HAND)
  - ARMORED SHREDDER (TO BE LEASED)
  - ARMORED SHREDDER (TO BE PROCURED)

- CUTTING OF REMAINING VEGETATION AFTER DUD CLEARANCE

PROBLEMS

- **SAFETY**
  - PERSONNEL SAFETY
  - FIRE SAFETY
- **ALL METHODS REQUIRE APPROVAL BY GERMAN AUTHORITIES BASED ON THE NEW NATO STATUTES OF FORCES AGREEMENT (NATO SOFA)**
- **GERMAN NATURE PROTECTION LAW**
- **APPROPRIATE EQUIPMENT REQUIRED: EXTREMELY EXPENSIVE OR NOT AVAILABLE ON GERMAN MARKET**

SOLUTION APPROACH

ON-SITE MEETING WITH

- **GERMAN AUTHORITIES**
  - **COUNTY OFFICE**
  - **DISTRICT GOVERNMEN**
  - **BAVARIAN ENVIRONMENTAL OFFI**

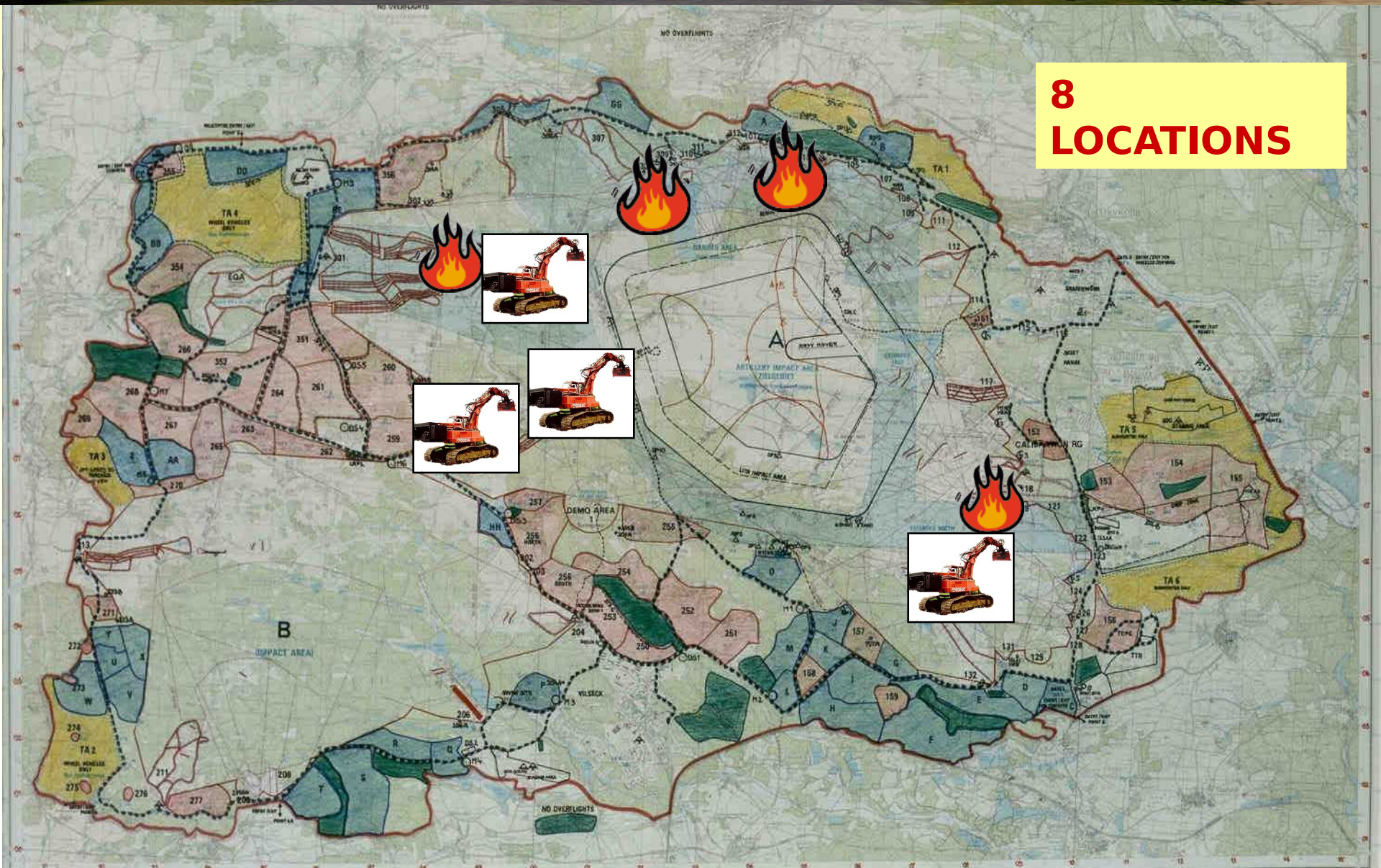
- **RANGE OPERATIONS**
- **DPW RANGE MAINTENANCE DIVISION**
- **GERMAN FORESTRY OFFICE**
- **ENVIRONMENTAL DIVISION**

POSSIBLE SOLUTION APPROACH

COMBINATION OF

BURNING AND SHREDDING

RANGE VEGETATION CLEARANCE AREAS



APPROVAL REQUIREMENTS OF GERMAN AUTHORITIES

- BURNING ONLY AFTER 1 AUGUST (BREEDING SEASON)
- THREATENED AND ENDANGERED SPECIES SURVEY MUST BE CONDUCTED BEFORE AND ON A REGULAR BASIS AFTER THE BURNING
- ENVIRONMENTAL DIVISION CAN CONDUCT THESE SURVEYS (RECEIVES SPECIAL TRAINING BY BAVARIAN ENVIRONMENTAL OFFICE)
- HIGH INTEREST FROM GERMAN SIDE AS VEGETATION CLEARANCE BY BURNING IS UNCOMMON IN GERMANY
- POSITIVE IMPACT ON TES DEVELOPMENT FROM BURNING EXPECTED

APPROVAL REQUIREMENTS OF GERMAN AUTHORITIES

- **FIRE SAFETY REQUIREMENTS MUST BE OBSERVED(E.G. ADDITIONAL FIRE BREAKS**
- **BURNED AREAS MUST BE DOCUMENTED INCLUDING OTHER AREAS THAT BURN BY ACCIDENT (GIS LAYER)**
- **USE OF ARMORED DOZER NOT APPROVED DUE TO COMPLETE TOP SOIL REMOVAL AND HABITAT DESTRUCTION**

SOLUTION
VEGETATION CLEARANCE
BY CONTROLLED BURNING

VEGETATION CLEARANCE WITH ARMORED SHREDDER

INTERNAL COORDINATION

- OPERATIONS/ SAFETY OFFICE
- FIRE DEPARTMENT
- GERMAN FORESTRY OFFICE
- DPW (RANGE MAINTENANCE DIVISION/ENVIRONMENTAL DIVISION)
- EXPLOSIVE ORDINANCE DIVISION
- PUBLIC AFFAIRS OFFICE

EXTERNAL COORDINATION

- COUNTY OFFICE
- LOCAL FIRE DEPARTMENT
- GERMAN LOCAL COMMUNITIES NEIGHBORING THE TRAINING AREA

COSTS - BURNING

- **SURFACE TO BE CLEARED 715,000 SQM**

- **FIRE BREAK PREPARATION**

  APPROXIMATELY 18 KM: 20 DAYS x $ 52/HOUR x 8 HOURS/DAY = $ 8, 300

- **FIRE DEPARTMENT STANDBY**

  2 FIREFIGHTERS x 70 DAYS $ 14/HOUR x 8 DAYS = $ 15,600

- **FIRETRUCK STAND BY**

  70 DAYS x $ 67/DAY X 8 HOURS/DAY = $ 37,500

COSTS - BURNING (cont'd)

- **2 RANGE MAINTENANCE CREW WORKERS**
  70 DAYS x $ 23/DAY x 8 HOURS/DAY = $ 12,900

- **TREE CUTTING AFTER THE BURNING**
  320 HOURS x $ 23/DAY = $ 7,400(GERMAN FORESTRY OFFICE NO COSTS)

- **TOTAL COSTS: $ 81,700**

COSTS PER SQM: $ 0,11

COSTS
ARMORED SHREDDER - PROCUREMENT

- **COSTS $ 100,000 (PROCUREMENT) COSTS $ 50,000 (MODIFICATION)**
- **ESTIMATED TIME TO CLEAR THE WHOLE AREA: 1 YEAR**
- **OPERATOR COSTS $21 x 220 DAYS x 8 HOURS = $ 37,000**
- **OPERATION COSTS $60 x 220 DAYS x 8hours = $ 105,600**
- **SURFACE TO BE CLEARED: 715,000 SQM**
- **TOTAL COSTS: $ 142,000**

COSTS PER SQM: $ 0,20

COSTS
ARMORED SHREDDER - LEASE

- **LEASING COSTS PER/YEAR: $ 750,000**
- **PERSONNEL COSTS: 21 X 220 DAYS X 8 HOURS = $ 37,000**
- **SURFACE TO BE CLEARED: 715,000 SQM**
- **TOTAL COSTS: $ 787,000**

COSTS PER SQM: $ 0.95

CONCLUSION

- **NO SINGLE SOLUTION AVAILABLE**
- **COSTS ARE RELATIVELY CLOSE FOR BURNING AND SHREDDER PROCUREMENT**

  BURNING COSTS PER SQM: $ 0.11

  SHREDDER COSTS PER SQM: $ 0.20

  (LEASE OF SHREDDER IS VERY EXPENSIVE: $ 0.95/SQM)
- **<u>AND</u> TO A LARGE EXTENT DEPENDENT ON EXISTING ENVIRONMENTAL AND WEATHER CONDITIONS**
- **COMBINATION OF BURNING/SHREDDING WITH ARMORED EQUIPMENT SEEMS TO BE PRESENTLY THE MOST COST-EFFECTIVE SOLUTION**

CONCLUSION

- **CONTROLLED BURNING CAN BE USED TO CONTROL DENSE BRUSH OR UNDERGROWTH OR CLEAR A RANGE AREA OF VEGETATION TO MAKE UXO CLEARANCE OPERATIONS SAFE FOR PERSONNEL CONDUCTING THE CLEARANCE**

  DOD Directive 4715.12 AUGUST 17, 1999

- **<u>BUT</u>: PROHIBIT CONTROLLED BURNING OF VEGETATION AS A METHOD OF UXO CLEARANCE ON DoD RANGES**

PRESENT SITUATION

APPROVAL FOR BURNING WAS RECEIVED

FUNDS FOR ARMORED SHREDDER WERE OBLIGATED

ANY EXPERIENCE ON OTHER INSTALLATIONS ?